

Claims:

1. A variable nozzle device comprising:

an annular nozzle passage formed by a gap between two
5 opposing wall members (3, 6; 18, 6); and
a rotation conversion mechanism (9, 35; 172, 181) for
adjusting said gap by converting an actuating rotational
movement of said mechanism into a translatory movement of at
least one of said wall members (3, 6; 18, 6), said rotation
10 conversion mechanism comprising a stationary backplate (1)
having a helicoidal engagement portion engaging with said
movable wall member (3) and an actuating device (51) for
rotating the movable wall member (3) relative to the
stationary backplate, thereby causing a translatory movement
15 of said movable wall member (3) toward the other one of said
wall members (6).

2. The variable nozzle device according to claim 1, wherein
said stationary backplate (1) has a ring groove the radial
20 inner wall of which is provided with a recess (9) forming
said helicoidal engagement portion and said movable wall
member (3) is formed as a ring accommodated in the ring
groove, so that a tongue member (35) provided at the radial
inner surface of said ring engages with said recess (9).

25 3. The variable nozzle device according to claim 1, wherein
said movable wall member (3) is formed as a ring the radial
inner surface and/or radial outer surface of which is
provided with at least one recess (9) forming said helicoidal
engagement portion, said recess engaging with a corresponding
30 tongue member (35) at the radial inner wall and/or radial
outer wall of a ring groove of said stationary backplate (1)
provided for accommodating said ring (3).

4. The variable nozzle device according to claim 2 or 3, wherein said tongue member (35) slidably engages with said engagement recess (9) so as to form a thread mechanism.

5 5. The variable nozzle device according to one of claims 1 to 4, wherein the rotation of said movable wall member (3) relative to said stationary backplate (1) is achieved by a gear mechanism (8).

10 6. The variable nozzle device according to claim 5, wherein said gear mechanism (8) comprises a geared portion (82) which is provided at the movable wall member (3) and a drive gear (83) which is in meshing engagement with said geared portion (82) and drivable by an electric motor (81).

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7. A variable nozzle device comprising:

an annular nozzle passage formed by a gap between two opposing wall members (3, 6; 18, 6); and

a rotation conversion mechanism (9, 35; 172, 181) for
20 adjusting said gap by converting an actuating rotational movement of said mechanism into a translatory movement of at least one of said wall members (3, 6; 18, 6), said rotation conversion mechanism comprising a stationary backplate (1) rotatably supporting a thrust member (17) carrying displacing
25 means, and an actuating device (51) for rotating the thrust member (17) relative to the movable wall member (18) so as to displace said movable wall member toward the other wall member (6), said movable wall member (18) being arranged on said stationary backplate (1) such that it is displaceable in
30 the direction of the rotational axis of said thrust member (17) and incapable of rotating relative to said stationary backplate (1), wherein

said displacing means comprise at least a pair of ramp portions (172, 181) provided on surfaces of said thrust
35 member (17) and said movable wall member (18) axially facing

each other, respectively, said ramp portions being abutted against each other along axially inclined surfaces (172a, 181a).

- 5 8. A compressor comprising a variable nozzle device according to one of claims 1 to 7 and a compressor wheel (4) for compressing a fluid through the annular nozzle passage of said variable nozzle device.
- 10 9. An exhaust gas turbine comprising a variable nozzle device according to one of claims 1 to 7 and a turbine wheel which is drivable by exhaust gas passed through the annular nozzle passage of said variable nozzle device.
- 15 10. A turbocharger comprising a compressor according to claim 8 and/or an exhaust gas turbine according to claim 9.